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FILE LAST UPDATED: 22 Jul 2004 (20040722/ED)

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=> s chemiluminesc? and biodegrad?
          27454 CHEMILUMINESC?
          38012 BIODEGRAD?
L1            9 CHEMILUMINESC? AND BIODEGRAD?

=> => d bib,ab 1-9; d his
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L1 ANSWER 1 OF 9 CA COPYRIGHT 2004 ACS on STN
AN 140:54464 CA
TI Hybridization signal amplification method (HSAM) nanostructures for targeted diagnostic and therapeutic uses
IN Zhang, David Y.; Zhang, Wandi
PA USA
SO U.S. Pat. Appl. Publ., 22 pp.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2003236205	A1	20031225	US 2002-176515	20020621
	WO 2004000278	A1	20031231	WO 2003-US19721	20030620

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRAI US 2002-176515 A 20020621

AB The present invention relates to a hybridization signal amplification method (HSAM) that can be used to form nanostructures for use in drug delivery and diagnostics and may comprise mols. aimed at a specific target cell of interest. The nanostuctures may be used to treat infectious diseases and physiol. disorders such as proliferative, genetic, neurol. or metabolic disorders. The nanostructures of the invention comprise nucleic acid mols. having affinity pairs incorporated into their structure. These

affinity pairs are formed from ligand and ligand binding moieties that bind to nucleic acid mols. This bound entity is a complex, web-like structure that serves as a matrix or framework for delivery of therapeutic or diagnostic agents. Since the nanostructures of the invention are comprised of biocompatible and **biodegradable** materials, such as nucleic acid mols. and proteins, they provide a safe and easily degradable delivery system. The method is demonstrated by the specific binding of a poly-dT coated magnetic particle to the HSAM nanostructure comprising biotinylated poly-dA signal probe and avidin. Dot blot detection of nucleic acid with HSAM nanostructures are demonstrated. Furthermore, the binding of doxorubicin to HSAM nanostructures are demonstrated which are shown to inhibit gastric adenocarcinoma cell growth.

L1 ANSWER 2 OF 9 CA COPYRIGHT 2004 ACS on STN
AN 139:328235 CA
TI Evaluation of the potential of starch-based **biodegradable** polymers in the activation of human inflammatory cells
AU Marques, A. P.; Reis, R. L.; Hunt, J. A.
CS Dep. Polymer Eng., Univ. Minho, Guimaraes, 4810-058, Port.
SO Journal of Materials Science: Materials in Medicine (2003), 14(2), 167-173
CODEN: JSMMEL; ISSN: 0957-4530
PB Kluwer Academic Publishers
DT Journal
LA English
AB The inflammatory response resulting from the implantation of a medical device may compromise its performance and efficiency leading, in certain cases, to the failure of the implant. Thus, the assessment of the behavior of inflammatory cells in vitro, constitutes a key feature in the evaluation of the adverse potential, or not, of new promising biomaterials. The objectives of this study were to determine whether starch-based polymers and composites activated human neutrophils. Blends of starch with ethylene-vinyl alc., with cellulose acetate and polycaprolactone, as well as composites based on all these materials filled with hydroxyapatite have been studied. A lysozyme assay was adapted to examine enzyme secretion from human neutrophils incubated with different starch-based materials. Changes in the free radical and degranulation activity of the neutrophil were also determined by measuring the luminescent response of Pholasinρ, a photoprotein that emits light after excitation by reactive oxygen species. The amount of lysozyme secreted by neutrophils incubated with the polymers did not exhibit significant differences between the tested materials. Results were in all cases similar to those obtained for the control (polypropylene) except for one of the starch blends (corn starch with polycaprolactone reinforced with 30% (weight/weight) of HA). The **chemiluminescence** expts. showed that polymers reduce the signal produced by activated neutrophils. Furthermore, for some polymers it was demonstrated that the phenomenon was due to an effect of the surface of the materials in cell adhesion or a simultaneous competition for the photoprotein in solution, which results in the decrease of the intensity of light emitted and detected.
RE.CNT 40 THERE ARE 40 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L1 ANSWER 3 OF 9 CA COPYRIGHT 2004 ACS on STN
AN 138:409106 CA
TI Degradable **chemiluminescent** systems and **chemiluminescent** light sources
IN Cranor, Earl
PA Omniglow Corporation, USA
SO PCT Int. Appl., 28 pp.
CODEN: PIXXD2

DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2003042326	A1	20030522	WO 2002-US36688	20021113
	WO 2003042326	C1	20030724		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

	US 2003102467	A1	20030605	US 2001-10075	20011113
PRAI	US 2001-10075	A	20011113		

AB **Chemiluminescent** light sources (e.g., light sticks) are described which are particularly susceptible to environmental degradation Preferably, both the container and the **chemiluminescent** solns. are **biodegradable.** Methods for selecting **biodegradable chemiluminescent** light-producing systems are also described which include criteria for selecting solvents for the oxalate and activator materials.

RE.CNT 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L1 ANSWER 4 OF 9 CA COPYRIGHT 2004 ACS on STN
AN 133:313460 CA
TI 'Stealth' corona-core nanoparticles surface modified by polyethylene glycol (PEG): influences of the corona (PEG chain length and surface density) and of the core composition on phagocytic uptake and plasma protein adsorption
AU Gref, R.; Luck, M.; Quellec, P.; Marchand, M.; Dellacherie, E.; Harnisch, S.; Blunk, T.; Muller, R. H.
CS Physico-Chimie, Pharmacotechnie, Biopharmacie, Centre d'Etudes Pharmaceutiques, Universite Paris Sud, UMR CNRS 8612, Chatenay Malabry, Fr.
SO Colloids and Surfaces, B: Biointerfaces (2000), 18(3,4), 301-313 CODEN: CSBBEQ; ISSN: 0927-7765
PB Elsevier Science B.V.
DT Journal
LA English
AB Nanoparticles possessing PEG chains on their surface have been described as blood persistent drug delivery system with potential applications for i.v. drug administration. Considering the importance of protein interactions with injected colloidal dug carriers with regard to their in vivo fate, we analyzed plasma protein adsorption onto **biodegradable** PEG-coated poly(lactic acid) (PLA), poly(lactic-co-glycolic acid) (PLGA) and poly(.vepsiln.-caprolactone) (PCL) nanoparticles employing two-dimensional gel electrophoresis (2-D PAGE). A series of corona/core nanoparticles of sizes 160-270 nm were prepared from diblock PEG-PLA, PEG-PLGA and PEG-PCL and from PEG-PLA:PLA blends. The PEG Mw was varied from 2000-20000 g/mol and the particles were prepared using different PEG contents. It was thus possible to study the influence of the PEG corona thickness and d., as well as the influence of the nature of the core (PLA, PLGA or PCL), on the competitive plasma protein adsorption, zeta potential and particle uptake by

polymorphonuclear (PMN) cells. 2-D PAGE studies showed that plasma protein adsorption on PEG-coated PLA nanospheres strongly depends on the PEG mol. weight (Mw) (i.e. PEG chain length at the particle surface) as well as on the PEG content in the particles (i.e. PEG chain d. at the surface of the particles). Whatever the thickness or the d. of the corona, the qual. composition of the plasma protein adsorption patterns was very similar, showing that adsorption was governed by interaction with a PLA surface protected more or less by PEG chains. The main spots on the gels were albumin, fibrinogen, IgG, Ig light chains, and the apolipoproteins apoA-I and apoE. For particles made of PEG-PLA45K with different PEG Mw, a maximal reduction in protein adsorption was found for a PEG Mw of 5000 g/mol. For nanospheres differing in their PEG content from 0.5 to 20 wt %, a PEG content between 2 and 5 wt % was determined as a threshold value for optimal protein resistance. When increasing the PEG content in the nanoparticles above 5 wt % no further reduction in protein adsorption was achieved. Phagocytosis by PMN studied using **chemiluminescence** and zeta potential data agreed well with these findings: the same PEG surface d. threshold was found to ensure simultaneously efficient steric stabilization and to avoid the uptake by PMN cells. Supposing all the PEG chains migrate to the surface, this would correspond to a distance of about 1.5 nm between two terminally attached PEG chains in the covering 'brush'. Particles from PEG5K-PLA45K, PEG5K-PLGA45K and PEG5K-PCL45K copolymers enabled to study the influence of the core on plasma protein adsorption, all other parameters (corona thickness and d.) being kept constant Adsorption patterns were in good qual. agreement with each other. Only a few protein species were exclusively present just on one type of nanoparticle. However, the extent of proteins adsorbed differed in a large extent from one particle to another. In vivo studies could help elucidating the role of the type and amount of proteins adsorbed on the fate of the nanoparticles after i.v. administration, as a function of the nature of their core. These results could be useful in the design of long circulating i.v. injectable **biodegradable** drug carriers endowed with protein resistant properties and low phagocytic uptake.

RE.CNT 44 THERE ARE 44 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L1 ANSWER 5 OF 9 CA COPYRIGHT 2004 ACS on STN
AN 131:49341 CA
TI Solid lipid nanoparticles. Phagocytic uptake, in vitro cytotoxicity, and in vitro **biodegradation.** First communication
AU Muller, Rainer H.; Olbrich, Carsten
CS Inst. Pharmazie I, Pharmazeutische Technologie, Biopharmazie Biotechnologie, Freie Univ. Berlin, Berlin, D-12169, Germany
SO Pharmazeutische Industrie (1999), 61(5), 462-467
CODEN: PHINAN; ISSN: 0031-711X
PB Editio Cantor Verlag
DT Journal
LA English
AB Anal. techniques are presented to study the phagocytic uptake of solid lipid nanoparticles (SLN) in vitro in cell cultures, especially the high sensitive indirect **chemiluminescence** (CL) assay to differentiate between particles exhibiting a very low uptake. It was investigated how surface modification of SLN can be used to minimize the phagocytosis. The SLN data were compared to traditional colloidal carriers. Depending on the nature of the stabilizing surfactant the SLN were taken up to a large extent (e.g. hexadecylphosphocholine), or to a minor or very low extent (e.g. Poloxamine 908). This effect can be used to target drug-loaded SLN to mononuclear phagocytic system (MPS) cells or to avoid the MPS to design drug depots circulating in the blood or being accumulated in other tissues, e.g. by differential protein absorption. Applying the indirect

CL allows fine tuning in the design of optimized SLN drug carriers, especially in combination with high resolution anal. of their interaction with body proteins as addnl. key factors for the in vivo body distribution.

RE.CNT 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L1 ANSWER 6 OF 9 CA COPYRIGHT 2004 ACS on STN
AN 120:135345 CA
TI Degradation of enhanced environmentally degradable polyethylene in biological aqueous media: mechanisms during the first stages
AU Albertsson, Ann Christine; Barenstedt, Camilla; Karlsson, Sigbritt
CS Dep. Polym. Technol., R. Inst. Technol., Stockholm, S-100 44, Swed.
SO Journal of Applied Polymer Science (1994), 51(6), 1097-105
CODEN: JAPNAB; ISSN: 0021-8995
DT Journal
LA English
AB Degradation of LDPE films containing a **biodegradable** starch filler and a pro-oxidant formulation was performed in aqueous media inoculated with bacteria or fungi at ambient temps. for 1 yr. The samples were characterized with the aim of elucidating the mechanisms that occur during the first stages and that are responsible for initiating the degradation of the LDPE matrix. Two interactive mechanisms were observed: the basal salt medium (water containing trace elements) triggered autoxidn. of the pro-oxidant through decomposition of trace hydroperoxides, which, in synergistic combination with biodegrdn. of the starch, eventually initiated autoxidn. of the LDPE matrix as monitored by **chemiluminescence**, DSC, and confocal scanning laser microscopy. The length of the induction period was dependent on the sample thickness and on the activity of the microbiol. system. Up to 48% of the starch was consumed during the first year as revealed by polarized-light microscopy.

L1 ANSWER 7 OF 9 CA COPYRIGHT 2004 ACS on STN
AN 120:31466 CA
TI Increased **biodegradation** of low-density polyethylene (LDPE) with nonionic surfactant
AU Albertsson, A. C.; Sares, C.; Karlsson, S.
CS Dep. Polym. Technol., R. Inst. Technol., Stockholm, S-100 44, Swed.
SO Acta Polymerica (1993), 44(5), 243-6
CODEN: ACPODY; ISSN: 0323-7648
DT Journal
LA English
AB LDPE's with and without 0.5% nonionic surfactant (Tween 80) were subjected to biodegrdn. in salt solns. with Pseudomonas aeruginosa. The degradation of LDPE was greater in samples containing Tween 80 than in pure LDPE as observed by attenuated total reflectance Fourier-transform IR spectrometric, DSC, and **chemiluminescence** measurements. In light microscopy a larger number of bacteria were observed on the surface of LDPE with Tween 80 incubated with Pseudomonas aeruginosa for 60 days than on the surface of pure LDPE. Thus, there is a greater susceptibility to biodegrdn. in the LDPE samples with surfactant than in the corresponding pure LDPE.

L1 ANSWER 8 OF 9 CA COPYRIGHT 2004 ACS on STN
AN 116:236725 CA
TI Susceptibility of enhanced environmentally degradable polyethylene to thermal and photo-oxidation
AU Albertsson, Ann Christine; Barenstedt, Camilla; Karlsson, Sigbritt
CS Dep. Polym. Technol., R. Inst. Technol., Stockholm, S-100 44, Swed.
SO Polymer Degradation and Stability (1992), 37(2), 163-71
CODEN: PDSTDW; ISSN: 0141-3910

DT Journal
LA English
AB LDPE films containing a **biodegradable** starch filler, a pro-oxidant formulation, and a thermal stabilizer were subjected to accelerated thermal aging in an air environment at 100° and 60° (simulating composting temps.) and to UV aging in a weatherometer. Degradation was monitored by **chemiluminescence**, FTIR, DSC, high-temperature size-exclusion chromatog., and SEM. Volatile degradation products were detected by gas chromatog.-mass spectrometry. All these techniques indicated that the samples were susceptible to thermal and photooxidn., particularly the former. LDPE containing corn starch as the sole additive did not degrade, suggesting that the pro-oxidant formulation was responsible for the observed degradation

L1 ANSWER 9 OF 9 CA COPYRIGHT 2004 ACS on STN
AN 98:70214 CA
TI Cationic polyelectrolytes and leukocyte factors function as opsonins, triggers of **chemiluminescence** and activators of autolytic enzymes in bacteria: modulation by anionic polyelectrolytes in relation to inflammation
AU Ginsburg, Isaac; Lahav, Meir; Ferne, Mina; Mueller, Sybille
CS Hadassah Sch. Dent. Med., Hebrew Univ., Jerusalem, Israel
SO Advances in Experimental Medicine and Biology (1982), 155(Macrophages Nat. Killer Cells), 151-60
CODEN: AEMBAP; ISSN: 0065-2598
DT Journal
LA English
AB A variety of cationic substances and leukocyte and platelet exts. function as effective opsonins for phagocytosis of streptococci by professional phagocytic cells both in vitro and in vivo. Furthermore, streptococci which have been opsonized with cationic ligands are capable of triggering a strong **chemiluminescent** reaction in both PMNs and macrophages. Thus, cationic and anionic polyelectrolytes are important to leukocyte function. The concentration and chemical nature of the cationic and anionic substances may determine whether or not bacterial cellular constituents are degraded by bacteriolysis, or whether non-**biodegradable** components of bacteria persist in macrophages or in tissues to trigger chronic inflammation.

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L1 9 S CHEMILUMINESC? AND BIODEGRAD?

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